



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

KW

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,312	07/28/2003	Gregory M. Waters	2390.1005-007	4459
21005	7590	02/14/2006	EXAMINER	
HAMILTON, BROOK, SMITH & REYNOLDS, P.C. 530 VIRGINIA ROAD P.O. BOX 9133 CONCORD, MA 01742-9133			PHAM, KHANH B	
		ART UNIT	PAPER NUMBER	
		2166		
DATE MAILED: 02/14/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/628,312	WATERS ET AL.	
	Examiner Khanh B. Pham	Art Unit 2166	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 16 January 2004.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 11-14 is/are allowed.
- 6) Claim(s) 1-3,6,9 and 10 is/are rejected.
- 7) Claim(s) 4,5,7 and 8 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 28 July 2003 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/28/2003.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

DETAILED ACTION

Priority

1. This application is a continuation of application serial no. 10/167,689, filed June 11, 2002, which is a continuation of 09/140,030, filed August 26, 1998, which is a continuation-in-part of application serial no. 09/104,314, filed June 25, 1998, which claims benefit of Provisional Application No 60/084,434, filed May 6, 1998.

Applicants are required to amend the specification to provide the current status of application serial No 10/167,689 in response to this Office Action.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on June 11, 2002 has been received. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement has been considered by the examiner.

Terminal Disclaimer

3. The terminal disclaimer filed on January 16, 2004 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Patent No. 6,430,527 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Preliminary Amendment

4. The Preliminary amendment filed January 16, 2006 has been entered. Claim 1 has been amended. Claims 11-14 have been added. Claims 1-14 are pending in this Office Action.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. **Claims 1-3, 9-10 are rejected under 35 U.S.C. 102(e)** as being anticipated by Turner et al. (US 6,018,524), hereinafter referred to as "Turner".

As per claim 1, Turner teaches a method of prefix search comprising:

- "distributing prefix search keys from an input to plural prefix search engines" at Col. 16 lines 22-35 and Fig. 14;
(Turner teaches at Fig. 14 the prefix search keys "100100" are distributed to multiple processors from an input L1.)

- “at each search engine, reading data from a prefix search data tree structure stored in memory” at Col. 16 lines 35-50 and Figs. 7, 11;
- “in a comparator, performing prefix search comparisons of search keys and data from the prefix search tree data structure to determine, in a forward pass of the tree data structure toward a leaf, memory address of nodes of the tree data structure to read the data from memory and obtain prefix search results” at Col. 12 lines 34-50 and Figs. 7, 11.

As per claim 2, Turner teaches the method as claimed in claim 2, further comprising: “distributing the prefix search keys to the plural prefix search engines over a network from an input queue as the engines become idle and forwarding results of prefix searches of the plural prefix search engines over the network to an output queue in an order independent of the order in the input queue” at Col. 16 lines 11-50.

As per claim 3, Turner teaches the method as claimed in claim 2, wherein “the results of the prefix searches are ordered in the output queue in the same order that the corresponding prefix search keys arrived at the input queue” at Col. 16 lines 11-50.

As per claim 9, Turner teaches the method as claimed in claim 1, wherein “the determined memory address is the address of the next tree node” at Col. 12 lines 34-50.

As per claim 10, Turner teaches the method as claimed in claim 9, wherein “the determined memory address is determined from a comparison of plural stored keys with the search key” at Col. 12 lines 34-50.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claim 6 is rejected under 35 U.S.C. 103(a)** as being unpatentable over Turner as applied to the claims above and in view of Ferguson et al (US 5,909,440).

As per claim 6, Turner teaches the same as stated in claim 1 argument. Turner does not teach: “storing a prefix search tree data structure across plural banks of memory units and accessing the tree structure in successive read cycles”. However, Ferguson teaches: “storing a prefix search tree data structure across plural banks of memory units and accessing the tree structure in successive read cycles” (Col. 15 lines 55-67). Thus, it would have been obvious to those of ordinary skill in the art at the time of the invention to modify Turner’s teaching to use plural bank of memory as claimed because as indicated by Ferguson, “the use of multiple memory banks is useful to increase the number of simultaneous read operations which can be performed in the look-up process” (Col. 15 lines 63-65). Claim 6 is therefore rejected.

Duplicate claims

9. **Claims 4, 5, 7, and 8 are objected** to under 37 CFR 1.75 as being a substantial duplicate of claims 11, 12, 13, 14 respectively. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Allowable Subject Matter

10. **Claims 11-14 are allowed.**

11. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 11-12, prior art of record do not teach the combination of claimed elements including “integrated circuit pins shared with another search engine”, “reading the data in burst over integrated circuit data pins dedicated to the search engine from the address locations in the memory unit” as recited in independent claim 14.

Regarding claims 13-14, prior art of record do not teach the combination of claimed elements including “storing a prefix search tree data structure across plural banks of memory units, duplicate copies of internal nodes of the tree structure being stored in each of plural banks, and accessing the tree structure in successive read cycles” as recited in independent claim13.

Conclusion

12. The prior art made of record, listed on form PTO-892, and not relied upon, if any, is considered pertinent to applicant's disclosure.

If a reference indicated as being mailed on PTO-FORM 892 has not been enclosed in this action, please contact Lisa Craney whose telephone number is (571) 272-3574 for faster service.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh B. Pham whose telephone number is (571) 272-4116. The examiner can normally be reached on Monday through Friday 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain Alam can be reached on (571) 272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Khanh B. Pham
Primary Examiner
Art Unit 2166

